State of Idaho
DEPARTMENT OF WATER RESOURCES
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JAMES E. RISCH
Governor

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Director

January 18, 2007

The Honorable Mike Crapo
United States Senate
Washington, DC

RE: Request to Support NASA Budget Augmentation for Continuation of a Landsat Thermal Band

Dear Senator Crapo:

We, the Eastern Snake Hydrologic Modeling Committee (ESHMC), are writing to solicit your support to fund the thermal band option on the Landsat Data Continuity Mission (LDCM). This is an issue of statewide importance to Idaho. Landsat's thermal band is an essential component for mapping how much water is used by irrigated agriculture and by urban-suburban development and is therefore a vital component for future water management in Idaho. The ESHMC is comprised of State, Federal, commercial, private and university professional representatives and was created and tasked by the Director of Idaho Department of Water Resources (IDWR) to provide technical review and advisement on the development of procedures to quantify and manage water resources of the eastern Snake River plain including the Snake Plain aquifer.

Specifically, we are asking you to support an additional augmentation of $50 million to NASA's FY07 budget to fund the thermal band option of LDCM. Given the obvious pressures on NASA's budget, it is not feasible to fund a thermal band by diverting dollars from existing NASA programs.

As expressed by the National Resources Council in their recent 2007 report[1], *"Remote sensing of land radiometric surface temperature (LST) is critical to all current schemes to estimate evapotranspiration remotely."* The IDWR relies on the high-resolution Landsat

[1] 2007. *Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond.* Space Studies Board, National Research Council. The National Academies Press p.165, 356.

thermal data collected by previous Landsat missions to monitor water consumption from irrigated agriculture at spatial scales permitting cost-effective assessment of water rights compliance, water resource depletions and irrigation diversion strategies[2], particularly over the Eastern Snake Plain Aquifer. Water from that aquifer is critical to Idaho's economy, and is now at the center of considerable controversy.

Both NASA and the water resources community recognize the importance of Landsat thermal-data for mapping water use. NASA has reinstated the option for the thermal band in the LDCM specifications, but can not fund the option. The Western Governors' Association[3] and the Western States Water Council both have expressed written support for Landsat thermal data, as have representatives of resource agencies in the states of California, Colorado, Idaho, Kansas, Nebraska, Nevada, New Mexico, Montana, Oklahoma, Utah, and Wyoming.

The ESHMC has identified water-use as its highest data priority. Only Landsat with a thermal band has the technology necessary to identify water consumption on a field-by-field basis. This function is critical to the future success of our state's agriculture industry because it is the only efficient and accurate way the State of Idaho has to map how much and where water is being used.

Your position as a member of the Western Water Caucus gives you a strong background on water use issues, and your position as a member of the Senate Agricultural Committee places you in a position to make a difference on this issue. In order to preserve the ability to map water use and help preserve Idaho's agriculture industry, we urge you to support an augmentation of $50 million to the FY07 NASA budget to ensure that the next generation of Landsat will have the important thermal capability. The augmentation needs to be in the FY07 budget to ensure that NASA fulfills the thermal imager option on the planned July 2011 LDCM launch.

The Land Remote Sensing Policy Act of 1992 (P.L. 102-555) mandates continuity in Landsat data collection, maintaining consistency with earlier Landsat systems in terms of spectral and spatial coverage. Landsat satellites have collected thermal data since 1978. Elimination of a thermal imaging capability in future Landsat missions represents a departure from the continuity mandate

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[2] 2005. Allen, R.G., Morse, A., Tasumi, M, Kramber, W.J., Bastiaanssen, W. Computing and Mapping of Evapotranspiration. Chapter 5 in *Advances in Water Science Methodologies*; U. Aswathanarayana, Ed.; A.A. Belkema Publishers, Leiden, The Netherlands.

[3] 2006. Rounds, M.M and Freudenthat, D. Letter from Western Governors' Association to J.H Marburger, Director of the President's Office of Science and Technology Policy; http://www.idwr.idaho.gov/gisdata/ET/thermal_band_issues/wga-landsat-letter-2.pdf

We are happy to answer any questions your staff might have, and to provide any additional material. ESHMC members can be reached at 208-423-6601. A further description of the specific need for the thermal band aboard the next Landsat mission is at www.idwr.idaho.gov/gisdata/landsat-thermal-band.htm

Thank you for your time in considering this matter.

Sincerely,

The Eastern Snake Hydrologic Modeling Committee

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